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METHOD OF PRODUCING URSOLIC ACID

[SPOSOB POLUCHENIYA URSOLOVOY KISLOTY]

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METHOF OF PRODUCING URSOLIC ACID

This invention is related to the pharmaceutical industry and pertains to the production of ursolic acid from plant raw material.

A method of producing ursolic acid by extraction of plant raw material using an organic solvent is known that involves distilling the solvent, processing the residue with subsequent dissolving of it and the isolation of the target product [1].

However, the known method is labor intensive, and a significant quantity of different reagents is used in doing so: petroleum ether, chloroform, ethanol, caustic soda, hydrochloric acid, and highly toxic methanol. Moreover, the method has many stages and is lengthy.

The aim of the invention is to simplify the method and expand the raw material base.

This goal is achieved by the fact that waste products of the essential oil production of Nereta transcaucasica L are used as the raw material source, the waste products being extracted by acetone in the ratio 1:10 to raw material at 18-20°C, distillation carried out to ¾ of the volume and the resulting solution being treated with an aqueous solution of acetone.

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[1] Numbers in the margin indicate pagination in the foreign text.

Example. One kg of air-dried finely ground residue of Nereta transcaucasica L (after extraction of the essential oil) is twice extracted by acetone in the ratio 1:10 at 20°C for 24 hours each time. The derived extracts are combined, filtered to remove mechanical impurities and distilled to ¾ the volume of acetone in a boiling water bath in order to precipitate the ursolic acid. The freshly formed abundant residue, which consists basically of ursolic acid, is filtered to remove the solvent residue. The residue in the filter is twice rinsed with 150 ml of acetone, dissolved in 500 ml of acetone by heating in boiling water bath with a reflux condenser. In order to accelerate the ursolic acid crystallization process one adds 25 ml of water to the cooled solution. Crystals of ursolic acid are filtered out and dried at 105°C to a constant weight.

One obtains 38 g of ursolic acid with melting temperature 283-284°C, which is 3.8% of the air-dried residues of Nereta transcausica L. Identification of the Nereta transcausica L was carried out by comparison of the IR-spectra of ursolic acid and the target product, and also from the lack of melting temperature decline in the mixed sample of target product with reliable sample of ursolic acid. Thus, the overall yield of ursolic acid according to the proposed method in comparison with the existing method (prototype) is improved by the factor 4.7 and is 3.8% of

the air-dried residues of Nereta transcausica L versus 0.81% for the existing method.

In order to produce ursolic acid using the recommended method one does not need a lot of time, special equipment and use of considerable amount of different reagents.

CLAIMS

A method of producing ursolic acid by extraction of plant raw material with an organic solvent, distillation of the solvent, processing of the residue with subsequent dissolving of it and the precipitation of the target product is disclosed that is characterized by the fact that in order to simplify the method and expand the raw material base, as the raw material one uses residues of essential oil production of Nereta transcausica L, which are extracted using acetone in the ratio 1:10 to the raw material at 18-20°C, distillation being carried out to ¾ of the volume and the resulting solution being treated with an aqueous solution of acetone.

Information sources considered by the examining board:

1. The journal "Rastitel'nyye resursy," 1972, VIII, No. 1, p. 104.